

7028063

02-11.08

PATENT *Cofe*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: SARMARU et al.

Attorney Docket No.: VELCP003

Application No.: 09/698,824

Examiner: Chat C. Do.

Filed: 10/26/2000

Group: 2193

Title: METHOD AND APPARATUS FOR A
DFT/IDFT ENGINE SUPPORTING MULTIPLE X-
DSL PROTOCOLS

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited as "Express Mail Post Office to Addressee" with the United States Postal Service with sufficient postage and Express Mail # **EB 513677173 US** in an envelope addressed to: Attention: Certificate of Corrections Branch, Commissioner for Patents, Alexandria, Virginia 22313-1450.

Date: February 9, 2008

Signed: 

Charles C. Cary

REQUEST FOR CERTIFICATE OF CORRECTION

Attention Certificate of Corrections Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Certificate

FEB 13 2008

of Correction

This communication is a request for Certificate of Correction for the above subject Patent No. 7,028,063. There are errors made by the Office in the Inventor section (75) of the Issued Patents cover sheet (*see attached copy*) and specifically to the last name of the 5th co-inventor, i.e. Sam Heidari. This co-inventor's last name is one word, i.e. Heidari, not as it currently appears Heid Ari. This inventor's last name was correctly spelled in:

- a) the originally filed unexecuted declaration ; (*see attached copy*)
- b) in the subsequently filed executed declaration; and (*see attached copy*)
- c) in the Original Filing receipt. (*see attached copy*)

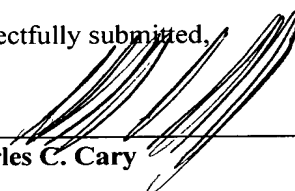
The error in its spelling in the Issued Patent Cover Sheet therefore appears to be an error introduced by the US Patent and Trademark Office, the correction of which is respectfully requested.

Should there be any fee due in connection with the filing of this request, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-1338 (Order No. **VELCP003**).

Thank you for your assistance in this matter. Do not hesitate to contact the undersigned as indicated below should you have any questions regarding this matter.

Respectfully submitted, 

Date: February 9, 2008

Signed: 

Charles C. Cary

IP Creators
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Registration No. 36,764

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EB513677173US

UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO. : US 7,028,063

DATED : April 11, 2006

INVENTOR(S) : O.S. Sarmaru; R.S. Bajwa; S. Begur; A. Shridhar; S. Heidari; B. Rezvani;

It is certified that error appears in the above-identified patent and that said Letters Patent
is hereby corrected as shown below:

On the cover sheet and specifically the Inventor Section (75) thereof, the last name of Co-Inventor Sam
HEIDARI should be corrected to remove the space therein. The inventor's last name is one word, i.e.
Heidari, not as it currently appears Heid Ari.

MAILING ADDRESS OF SENDER:

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IP Creators
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No. of additional copies



This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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US007028063B1

(12) **United States Patent**
Sarmaru et al.

(10) Patent No.: **US 7,028,063 B1**
(45) Date of Patent: **April 11, 2006**

(54) **METHOD AND APPARATUS FOR A
DFT/IDFT ENGINE SUPPORTING
MULTIPLE XDSL PROTOCOLS**

(75) Inventors: **Omprakash S. Sarmaru**, Fremont, CA (US); **Raminder S. Bajwa**, Palo Alto, CA (US); **Sridhar Begur**, Cupertino, CA (US); **Avadhani Shridhar**, Santa Clara, CA (US); **Sam Held Ari**, Fremont, CA (US); **Behrooz Rezvaui**, Pleasanton, CA (US)

(73) Assignee: **Velocity Communication, Inc.**, Fremont, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 327 days.

(21) Appl. No. **09/698,824**

(22) Filed: **Oct. 26, 2000**

Related U.S. Application Data

(60) Provisional application No. 60/161,744 filed on Oct. 26, 1999; provisional application No. 60/179,862 filed on Feb. 2, 2000.

(51) Int. Cl.

F06F 17/14 (2006.01)

(52) U.S. Cl. 708/403; 708/406; 708/404

(58) Field of Classification Search 708/400, 708/402, 405, 404, 403, 406, 401, 408, 409
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

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OTHER PUBLICATIONS

Ali, "Decimation-in-Time-Frequency FFT algorithm, 1994, IEEE, pp. 453-456."

* cited by examiner

Primary Examiner—Kakali Chaki

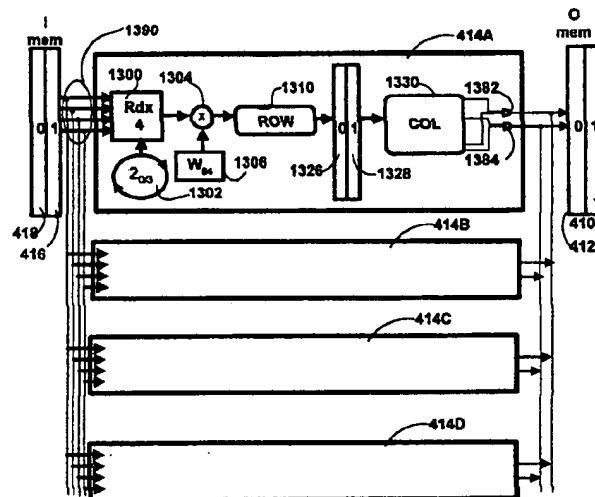
Assistant Examiner—Chat C. Do

(74) Attorney, Agent, or Firm—IP Creators; Charles C. Cary

(57) **ABSTRACT**

A Fourier transform processor utilizing discrete circuits each of which is configurable for processing a wide range of sample sizes. A single pipeline supports multiplexed bi-directional transformations between for example the time and frequency domains. In an embodiment of the invention the Fourier Transform processor may be implemented as part of a digital signal processor (DSP). In this embodiment the DSP may implement both the discrete Fourier transform (DFT) and inverse discrete Fourier transform (IDFT) across a wide range of sample sizes and X-DSL protocols. Multiple channels, each with varying ones of the X-DSL protocols can be handled in the same session.

16 Claims, 18 Drawing Sheets

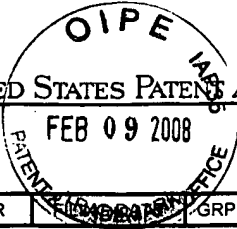


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| APPLICATION NUMBER | FILING DATE | GRP ART UNIT | FIL FEE REC'D | ATTY. DOCKET NO | DRAWINGS | TOT CLAIMS | IND CLAIMS |
|--------------------|-------------|--------------|---------------|-----------------|----------|------------|------------|
| 09/698,824 | 10/26/2000 | 2121 | 364 | VELCP003 | 18 | 21 | 2 |

Cary & Kelly LLP
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Mountain View, CA 94043

FILING RECEIPT

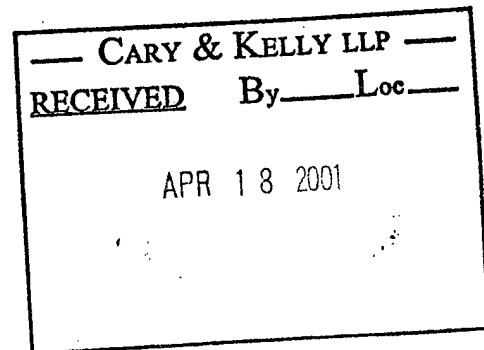


OC000000005644404

Date Mailed: 03/30/2001

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the PTO processes the reply to the Notice, the PTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

Applicant(s)

Omprakash S. Sarmaru, Fremont, CA ;
Raminder S. Bajwa, Palo Alto, CA ;
Sridhar Begur, Cupertino, CA ;
Avadhani Shridhar, Santa Clara, CA ;
Sam Haddari, Fremont, CA ;
Behrooz Rezvani, Pleasanton, CA ;

Continuing Data as Claimed by Applicant

Foreign Applications

If Required, Foreign Filing License Granted 12/28/2000

** SMALL ENTITY **

Title

Method and apparatus for a DFT/IDFT engine supporting multiple x-dsl protocols

Preliminary Class

708

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DECLARATION AND POWER OF ATTORNEY FOR ORIGINAL U.S. PATENT APPLICATION

Attorney's Docket No. VELCP003

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:
METHOD & APPARATUS FOR FDT/IDFT ENGINE SUPPORTING MULTIPLE X-DSL PROTOCOLS the specification of which,

(check one)

1. ☐ is attached hereto.
2. ☒ was filed on October 26, 2000 as
U.S. Application No. _____
and was amended on _____.
3. ☐ was filed on _____ as
International PCT Application No. _____
and was amended on _____.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, CFR § 1.56.

Prior Foreign Application(s)

I hereby claim foreign priority benefits under Title 35, United States code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed:

| | | | Priority Benefits Claimed? |
|----------------------------|--------------------|------------------------|----------------------------|
| | | | Yes ___ No ___ |
| _____ (Application No.) | _____ (Country) | _____ (Filing Date) | |
| _____ (Application No.) | _____ (Country) | _____ (Filing Date) | Yes ___ No ___ |

Provisional Application(s)

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below:

| | |
|-------------------|-------------------------|
| <u>60/161,744</u> | <u>October 26, 1999</u> |
| (Application No.) | (Filing Date) |
| <u>60/179,862</u> | <u>February 2, 2000</u> |
| (Application No.) | (Filing Date) |

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Prior U.S. Application(s)

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application No.) (Filing Date) (Status - patented, pending, abandoned)

(Application No.) (Filing Date) (Status - patented, pending, abandoned)

Power of Attorney

And I hereby appoint the law firm of **CARY & KELLY, LLP** and all practitioners who are associated with firm as my principal attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

Direct Correspondence To:

CARY & KELLY, LLP
1875 Charleston Road
Mountain View CA, 94043

Direct Telephone Calls To:

Charles C. Cary at telephone number (650) 316-4011

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Typewritten Full Name of
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Omprakash S. SARMARU

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Inventor's signature:

Date of Signature: _____

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DECLARATION AND POWER OF ATTORNEY FOR ORIGINAL U.S. PATENT APPLICATION

Attorney's Docket No. VELCP003

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:
**METHOD & APPARATUS FOR FDT/IDFT ENGINE SUPPORTING MULTIPLE X-DSL
PROTOCOLS** the specification of which,

- (check one) 1. ☐ is attached hereto.
2. ☒ was filed on October 26, 2000 as
U.S. Application No. 07/698,824
and was amended on _____.
3. ☐ was filed on _____ as
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and was amended on _____.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, CFR § 1.56.

I hereby grant my attorneys the right to insert the U.S. application number and filing date where space is provided above at any time subsequent to the date of my signature below.

Prior Foreign Application(s)

I hereby claim foreign priority benefits under Title 35, United States code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed:

| (Application No.) | (Country) | (Filing Date) | Priority Benefits Claimed? Yes ___ No ___ |
|----------------------------|--------------------|------------------------|----------------------------------------------|
| _____ (Application No.) | _____ (Country) | _____ (Filing Date) | Yes ___ No ___ |

Provisional Application(s)

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60/161,744
(Application No.)
60/179,862
(Application No.)

October 26, 1999
(Filing Date)
February 2, 2000
(Filing Date)

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Prior U.S. Application(s)

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| | | |
|-------------------|---------------|-----------------------------------------|
| _____ | _____ | _____ |
| (Application No.) | (Filing Date) | (Status - patented, pending, abandoned) |
| _____ | _____ | _____ |
| (Application No.) | (Filing Date) | (Status - patented, pending, abandoned) |

Power of Attorney

And I hereby appoint the law firm of **CARY & KELLY, LLP** and all practitioners who are associated with firm as my principal attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

Direct Correspondence To:

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Direct Telephone Calls To:

Charles C. Cary at telephone number (650) 316-4011

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

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